



# DEVELOPMENTAL DEVICE

## Westinghouse

## TENTATIVE DATA

ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK

WX- 30211P-

Δ

DATE November 26, 1965

PAGE 1 of 3

### 12" INDUSTRIAL & MILITARY CATHODE RAY TUBE TYPE WX-30211P-

#### Basic Characteristics

12" Round Flat Faceplate  
Electrostatic Focus  
36° Magnetic Deflection

#### Typical Applications

Symbol Presentation  
Rear-Window Viewing &  
Photographic Recording  
Rear-Window Image Projection

#### Special Features

Double Rear Window  
0.010" Line Width  
Double-Axis Auxiliary  
Deflection

#### ELECTRICAL

Cathode . . . . . Coated Unipotential

##### Heater:

Voltage . . . . . 6.3 Volts

Current . . . . . 0.6 Ampere

##### Direct Interelectrode Capacitances:

Grid 1 to all other Electrodes . . . . . 10 pF

Grid 2 to all other Electrodes . . . . . 8 pF

Cathode to all other Electrodes . . . . . 6 pF

D1 to D2 . . . . . 1 pF

D3 to D4 . . . . . 1 pF

D1 to all other Electrodes . . . . . 3.5 pF

D2 to all other Electrodes . . . . . 3.5 pF

D3 to all other Electrodes . . . . . 3.3 pF

D4 to all other Electrodes . . . . . 3.7 pF

Focusing Method . . . . . Electrostatic

Deflection . . . . . 36° Magnetic

Auxiliary Deflection . . . . . Electrostatic

#### OPTICAL

Screen Phosphor . . . . . Note 1

##### Faceplate:

Configuration . . . . . Flat

Glass . . . . . Clear, Non Browning

Transmission . . . . . 90%

Index of Refraction . . . . . 1.52

##### Rear Windows:

Configuration . . . . . Flat

Glass . . . . . Clear Ophthalmic Quality

Transmission . . . . . 90%

Index of Refraction . . . . . 1.60

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## MECHANICAL

Mounting Position . . . . . Any  
Net Weight (Approx) . . . . . 30 Pounds

## ABSOLUTE MAXIMUM RATINGS

Anode Voltage (Note 2) . . . . . 16000 max. Volts  
Grid 4 (Focus) Voltage . . . . . 6000 max. Volts  
Grid 2 Voltage . . . . . 600 max. Volts  
Grid 1 Voltage:  
    Negative Bias Value . . . . . 180 max. Volts  
    Positive Bias Value . . . . . 0 max. Volts  
    Positive Peak Value . . . . . 0 max. Volts  
Peak Heater-Cathode Voltage:  
    Heater Negative with respect to Cathode:  
        During warm-up period of 15 sec. max. . . 410 max. Volts  
        After equipment warm up . . . . . 180 max. Volts  
    Heater Positive with respect to Cathode . . 180 max. Volts  
Peak Voltage between Anode and any Deflection  
    Electrode . . . . . 500 max. Volts

## LIMITING CIRCUIT VALUES

Grid 1 Circuit Resistance . . . . . 1.5 max. Megohms  
Grid 2 Circuit Resistance . . . . . 0.5 approx. Megohms  
Grid 4 (Focus) Circuit Resistance . . . . . 10000 min. Ohms

## TYPICAL OPERATION & PERFORMANCE

Anode Voltage (Note 2) . . . . . 12000 Volts  
Grid 4 (Focus) Voltage . . . . . 3000 to 4400 Volts  
Grid 2 Voltage . . . . . 500 Volts  
Grid 1 Spot Cutoff Voltage . . . . . -40 to -70 Volts  
Line Width with P31 (Note 3) . . . . . 0.010 Inch  
Auxiliary Deflection Factors (Note 4) . . . . . 300 V/Inch  
Spot Position (Note 5) . . . . . 10 mm

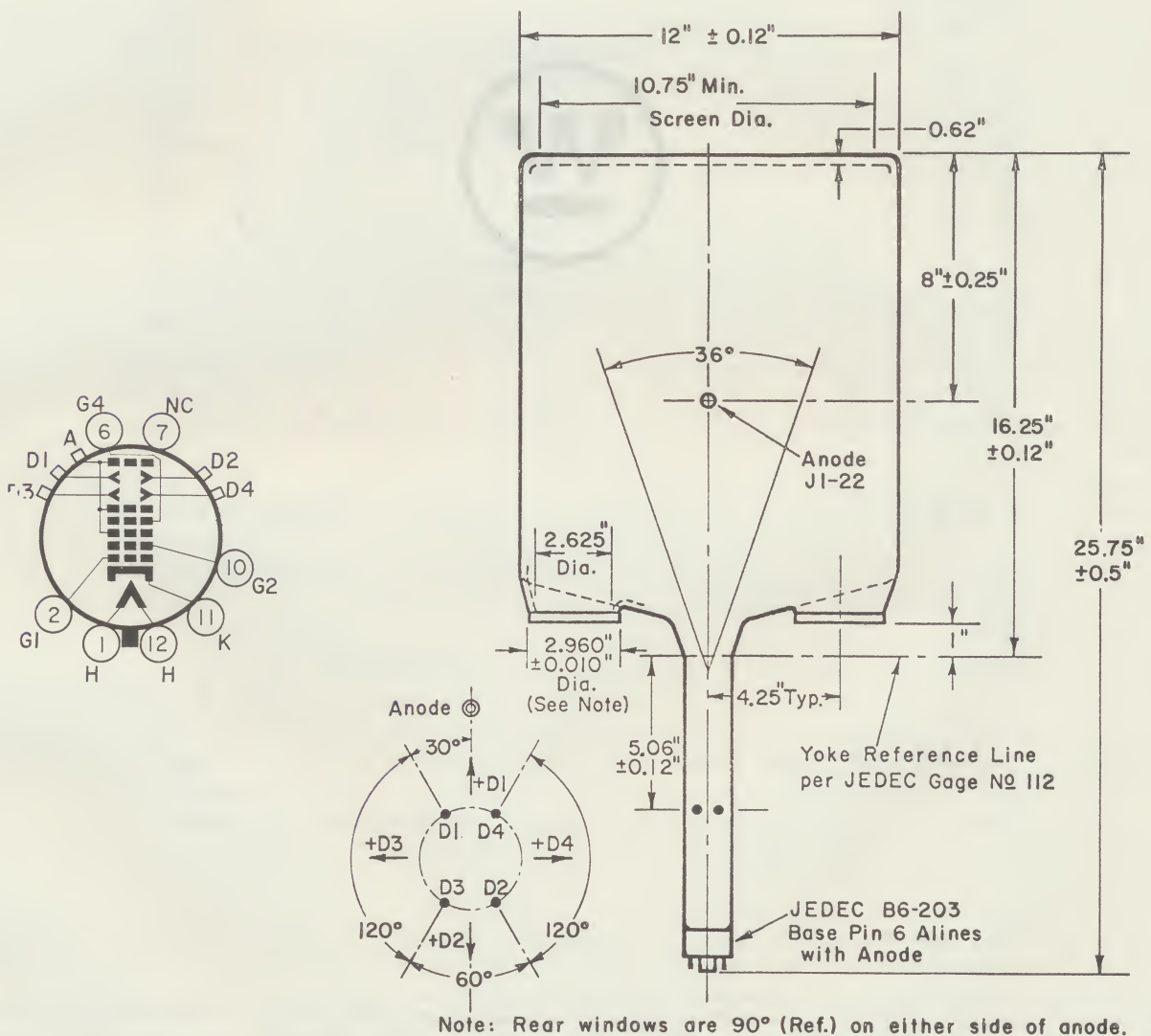
## NOTES

1. Westinghouse Industrial & Military Cathode Ray Tubes can be supplied with most of the standard JEDEC phosphors.
2. Operation with voltage in excess of 16KV may require shielding to limit radiation of very soft X-rays.
3. Line width is measured by the skrinking raster method with an anode current sufficient to give a light output of 20 ft-L on a 0.25" square raster.





4. Auxiliary deflection voltages must be balanced around the anode voltage with the center values of deflection voltage well clamped to the anode voltage. Auxiliary deflections greater than 0.5" may result in excessive spot distortion.
5. With deflecting electrodes connected to anode and with the tube shielded against external magnetic fields, the focused spot is within a 10 mm square centered on the tube face and with sides parallel to scanning axes.







## DEVELOPMENTAL DEVICE

Westinghouse

TENTATIVE DATA

ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK

WX- 31060P-

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DATE October 11, 1965

PAGE 1 of 3

## 12" INDUSTRIAL &amp; MILITARY CATHODE RAY TUBE TYPE WX-31060P-

Basic Characteristics

12" Round Flat Faceplate  
Electrostatic Focus  
36° Magnetic Deflection

Typical Applications

Rear Window Viewing &  
Photographic Recording  
Rear Window Image Projection .

Special Features

Double Rear Window  
0.010" Line Width

## ELECTRICAL

Cathode . . . . . Coated Unipotential

## Heater:

Voltage . . . . . 6.3 Volts

Current . . . . . 0.6 Ampere

## Direct Interelectrode Capacitances:

Grid 1 to all other Electrodes . . . . . 10 pF

Grid 2 to all other Electrodes . . . . . 8 pF

Cathode to all other Electrodes . . . . . 6 pF

Focusing Method . . . . . Electrostatic

Deflection . . . . . 36° Magnetic

## OPTICAL

Screen Phosphor . . . . . Note 1

## Faceplate:

Configuration . . . . . Flat

Glass . . . . . Clear Non-Browning

Transmission . . . . . 90%

Index of Refraction . . . . . 1.52

## Rear Windows:

Configuration . . . . . Flat

Glass . . . . . Clear Ophthalmic Quality

Transmission . . . . . 90%

Index of Refraction . . . . . 1.60

## MECHANICAL

Mounting Position . . . . . Any

Net Weight (Approx.) . . . . . 30 lb.

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NEW ISSUE

INDUSTRIAL &amp; MILITARY CATHODE RAY TUBES

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ABSOLUTE MAXIMUM RATINGS

|                                          |                   |
|------------------------------------------|-------------------|
| Anode Voltage (Note 2)                   | 16,000 max. Volts |
| Grid 4 (Focus) Voltage                   | 6,000 max. Volts  |
| Grid 2 Voltage                           | 600 max. Volts    |
| Grid 1 Voltage:                          |                   |
| Negative Bias Value                      | 180 max. Volts    |
| Positive Bias Value                      | 0 max. Volts      |
| Positive Peak Value                      | 0 max. Volts      |
| Peak Heater-Cathode Voltage:             |                   |
| Heater Negative with respect to Cathode: |                   |
| During warm-up period of 15 sec. max.    | 410 max. Volts    |
| After Equipment warm-up period           | 180 max. Volts    |
| Heater Positive with respect to Cathode  | 180 max. Volts    |

LIMITING CIRCUIT VALUES

|                                    |                  |
|------------------------------------|------------------|
| Grid 1 Circuit Resistance          | 1.5 max. Megohms |
| Grid 2 Circuit Resistance Approx.  | 0.5 Megohms      |
| Focus Electrode Circuit Resistance | 10,000 min. Ohms |

TYPICAL OPERATING CONDITIONS

|                             |                     |
|-----------------------------|---------------------|
| Anode Voltage (Note 2)      | 12,000 Volts        |
| Grid 4 (Focus) Voltage      | 3000 to 4,400 Volts |
| Grid 2 Voltage              | 500 Volts           |
| Grid 1 Spot Cutoff Voltage  | -40 to -70 Volts    |
| Line Width for P31 (Note 3) | 0.010 Inch          |
| Spot Position (Note 4)      | 5 mm                |

NOTES

1. Westinghouse Industrial & Military Cathode Ray Tubes can be supplied most of the standard JEDEC phosphors.
2. Operation with voltage in excess of 16 KV may require shielding to limit radiation of very soft x-rays.
3. Line width is measured by the shrinking raster method with an anode current sufficient to give a light output of 20 ft-L on a 0.25" square raster.
4. With the tube shielded against external magnetic fields, the focused spot is within a circle of 5 mm radius centered on the tube faceplate.

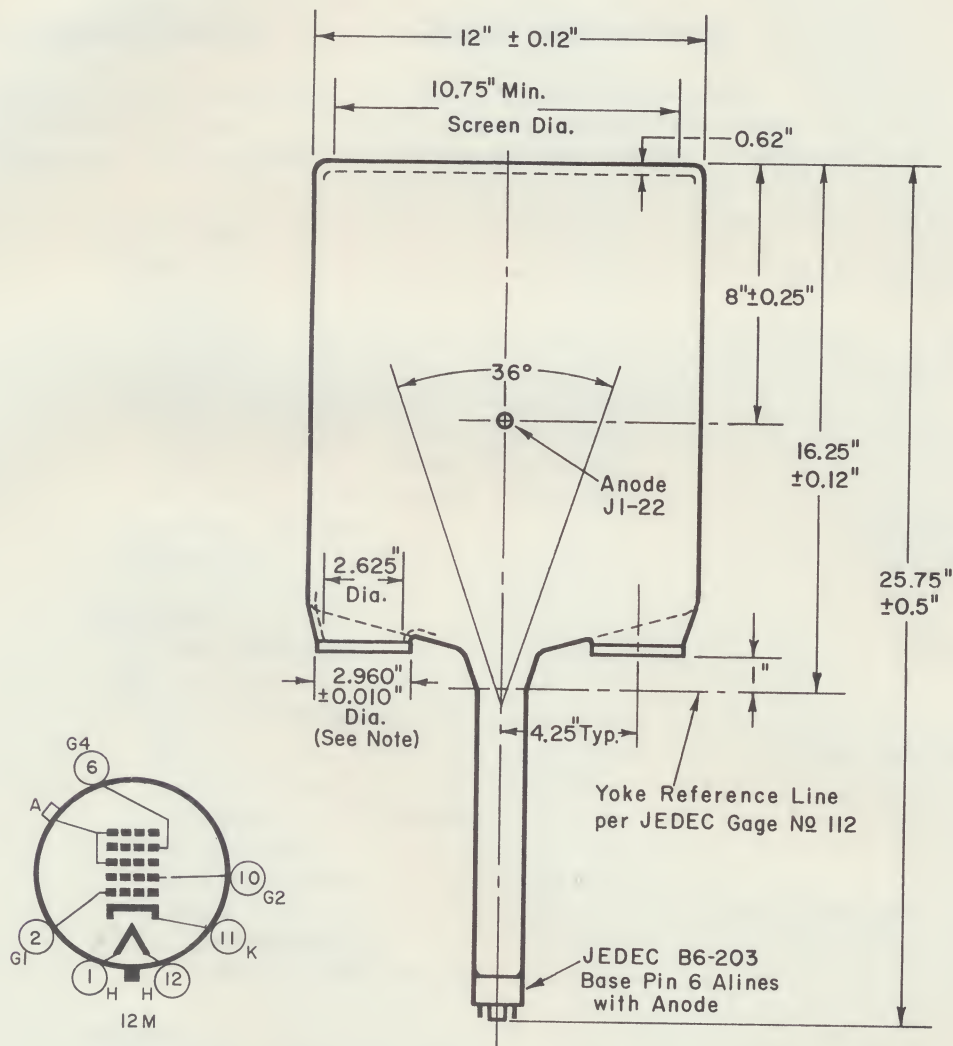


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WX-31060P-

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PAGE 3 of 3



Note: Rear windows are  $90^\circ$  (Ref.) on either side of anode.

# The Material You Requested Is Enclosed



WE WILL BE PLEASED TO SEND YOU NEW INFORMATION RELEASES

REGULARLY ON ANY OF THE FOLLOWING CLASSES OF TUBES

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| <input type="checkbox"/> THYRATRONS                               | <input type="checkbox"/> IMAGE TUBES                               |
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| <input type="checkbox"/> CAMERA TUBES (IMAGE ORTHICONS, VIDICONS) | <input type="checkbox"/> ENTERTAINMENT RECEIVING TUBES             |
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| <input type="checkbox"/> VACUUM GAUGES                            |                                                                    |

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